

REMARKS

Status of Claims

Reconsideration and allowance of the claims pending in the application are requested.

Claims 1-25 are pending in the application.

Claims 1-25 have been rejected, as follows:

1. Claims 1, 2, 6-12 and 15-19 have been rejected under 35 USC 102(e) as being anticipated by U.S. Publication No. 2005/0058181 A1 to R. D. Lyle et al., published March 17, 2005, filed August 28, 2003 (hereafter, "Lyle").

2. Claims 23 and 24 have been rejected under 35 USC 102(b) as being anticipated by U.S. Patent 5,533,025 to A. E. Fleek et al., issued July 2, 1996, filed September 26, 1994 (hereafter, "Fleek").

3. Claims 4, 5, 14, 20-22 and 25 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Lyle in view of Fleek.

4. Claims 3 and 13 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Lyle as applied to claims 1 and 11, respectively above, and further in view of U.S. Patent 6,333,937 B1 to D. J. Ryan, issued December 25, 2001, filed March 5, 1998 (hereafter "Ryan").

Applicants have amended claims 1, 10, 11, 14, 20, 23 and 25 to further distinguish the claimed subject matter from the cited art.

Applicants respond to the indicated Sections of the subject Office Action, as follow:

1. Claim Rejections Under 35 USC 102(e):

Claim 1, as amended, 2, 6-10, 11, as amended, include features not disclosed in Lyle and overcome the rejection under 35 USC 102(e) based on the cited art, as follows:

Claim 1:

(a) The Examiner contends that Lyle, Fig. 3, paragraph 0031, discloses feature (a) of claim 1. Fig. 3 and paragraph 0031 describe an interference detector to detect interference from a nearby network operating within range. The interference detector includes logic to determine the interfering hop sequence of the interfering frequency hopping spread spectrum network. In

contrast, Applicants specification at paragraph 57 discloses the identification of remote networks and their frequency hopping patterns. The hopping patterns may be determined by measuring energy (e.g. carrier sensing) in one or more frequency bands. Lyle determines an interfering hop sequence; whereas, applicants determine an entire frequency hopping pattern. Lyle fails to disclose identifying a frequency hopping pattern marked by measuring energy level in one or more frequency bands associated with the remote short-range wireless communication network.

(b) The Examiner contends that Lyle at paragraph 34 and paragraph 27, disclose feature (b). Paragraph 34 discloses a hop sequencer, which alters the hopping sequence of network according to an interfering network. Paragraph 27 further describes the hop sequencer. In contrast, applicants' specification at paragraph 0011 discloses changing an entire frequency hopping pattern. So, from the above, it is clear that the Lyle reference makes alterations to the existing frequency hopping pattern to reduce interference with other instances, and does not change the entire frequency hopping pattern that has been used. The difference in here is based on the differing environments: In Bluetooth, the frequency hopping pattern is based on the BD_ADDR of the master device and various mechanisms have been developed for reducing interference in Bluetooth to avoid using busy frequencies and adjust according to country specific regulations to make the frequency hopping pattern adaptive. Similarly, In MBOA UWB, there exists several available frequency hopping patterns (TFC codes) that define the frequency hopping pattern to be used and the devices can choose the best suitable one based on detected interference conditions. Accordingly, Lyle fails to disclose the subject matter of feature (b).

(c) The Examiner contends that Lyle at paragraph 0036, and paragraph 0037 disclose selecting a timing for the selected frequency hopping patterns. Paragraph 0036 discloses an altered hop sequence calculated using a heuristic method to iteratively offset an existing hop sequence. Paragraph 37 discloses an offset refers to the relatively larger-scale extra-piconet offset to sequences and not to the micro scale intra-piconet phase alignment which still occur.

In contrast, Applicants' specification at paragraph 0008, discloses that a frequency hopping pattern is selected by measuring energy level in one or more frequency bands and listening for beacons of other piconets to ascertain their frequency hopping patterns. Adjusting an offset to an existing hop sequence to adjust the timing of the used frequency sequence does not equate to measuring energy levels in frequency to adjust the timing of a predefined hopping

pattern. Lyle fails to disclose selecting a timing for a frequency hopping pattern based on a measured energy level, as described in applicants' specification at paragraph 0008.

(d) Lyle discloses determining its hopping pattern and timing interval based on measurements made in a remote network. Applicants can find no disclosure in Lyle, where the hopping sequence and timing sequence are determined by a master device and communicated to slave devices in a network, as described in Applicants specification in paragraph 0063

Summarizing, Lyle fails to disclose (a) measuring energy levels to identify a frequency hopping pattern; (b) selecting a timing for the selected frequency hopping pattern based on the measured energy level; and (c) communicating the selected frequency hopping patterns and timing to other devices in a local short-range wireless communication network.

Claim 2:

Claims 2 depends from and further limits claim 1 and is patentable over Lyle on the same basis as claim 1.

Claim 6:

The Examiner contends Lyle in paragraph 0037 discloses where a sequence is selected to be the sequence of the neighborhood neighboring piconet the offset is large and is in a direction, which causes an intentional misalignment of the hop sequences. Applicants can find no disclosure in the cited paragraph, where the identified hopping pattern and the selected hopping pattern are the same. The cited paragraph fails to disclose subject matter in claim 51.

Claim 7:

The Examiner contends Lyle at paragraph 0032, discloses the subject matter of claim 7. Paragraph 0032 discloses a device joining an interfering network to obtain the interfering hop sequence data, whereby an initiated hop sequence tends to not coincide statistically with the interfering network's hop sequence. Lyle does not disclose selecting a timing that provides for no collisions between an identified frequency hopping pattern and a selected frequency hopping pattern, as described by Applicant in paragraphs 0052 and 0053 in Applicant's specification.

Paragraph 0032 fails to disclose the subject matter of claim 7.

Claim 8:

Claim 8 depends from and further limits claim 1 and is patentable on the same basis as claim 1.

Claim 9:

Claim 9 depends from and further limits claim 1, via claim 8, and is patentable over Lyle on the same basis as claim 1.

Claim 10:

The Examiner contends that paragraph 0029 of Lyle discloses the subject matter of claim 10. Paragraph 0029 describes a mode switch, which contains logic for switching a device in a Bluetooth network between a master state and a slave state. Applicants can find no disclose in the cited reference where either the master or the slave device direct one or more devices in different networks to employ a frequency hopping pattern.

Claim 11:

Claim 11 describes claim 1 in system form and is patentable over Lyle on the same basis as claim 1, previously described.

Claim 12 & 15-19:

Claims 12 and 15-19 are patentable over Lyle for the reasons given in distinguishing claims 2 and 6-10 from Lyle.

II. Claim Rejections Under 35 USC 102(b):

Claims 23 and 24 include features not disclosed in Fleek and overcome the rejections under 35 USC 102(b) based on the cited art, as follows;

Claim 23:

(i) “a timing controller generating scan messages inquiring about neighborhood networks and frequency hopping patterns they employ and configured to control one or more transmission times according to a frequency hopping pattern based on energy levels detected in a frequency band by the carrier sensing module;”

The Examiner contends that Fleek at col. 5, lines 31-39 discloses the subject matter of feature (i), as presented. Applicants can find no disclosure in Fleek, at col. 5, lines 31-39, relating to measuring energy levels. Col. 5, lines 31-39 of Fleek disclose a station waits until the radio

channel becomes idle and then waits a random amount of time to begin sensing and transmitting procedures. Applicants submit that waiting for an idle period in a transmission does not equate to measuring energy level detected in a frequency band by a carrier sensing module, as described in Applicants specification at paragraph 0057.

Moreover, claim 23, as amended, describes generating scan messages inquiring about neighboring frequency hopping patterns. Applicants can find no disclosure in Fleek describing scan messages. Claim 23 discloses subject matter not shown or suggested in Fleek.

Claim 24:

The Examiner contends col. 6, lines 29-34 and col. 7, lines 29-36 of Fleek disclose a beacon transmission including a frequency hopping pattern. The cited paragraph describe a timing diagram and not a super frame including a beacon portion, as described in applicants specification in paragraph 37. The Examiner cited paragraphs fail to disclose the subject matter of claim 24. In any case, claim 24 depends from claim 23 and is patentable over Fleek for the same reasons as indicated for claim 23.

III. Claim Rejections Under 35 USC 103(a):

Claims 4, 5, 14, 20-22 and 25 include features not disclosed nor suggested in Lyle in view of Fleek and overcome their rejection under 35 USC 103(a), based upon the cited references, as follows:

Claim 4:

- (i) “identifying a low energy condition in the frequency band; and”

The Examiner contends that Fleek, at col. 5, lines 31-34, discloses identifying a low energy condition. The cited paragraph discloses Fleek waits until the radio channel is idle before transmitting or zero energy. In contrast, applicants at paragraph 61, discloses identifying a low energy condition in a frequency band, rather than, waiting for an idle condition in a frequency band. Applicants submit detecting no energy does not equate to identifying low energy in a band.

- (ii) “designating a starting time for the selected frequency hopping pattern during the low energy condition.”

The Examiner contends that Fleek, at col. 5, lines 34-39 and 48-49, determines a back-off time using a truncated binary exponential back-off mechanism. A back-off time is not related to or suggest a starting time identified by a low energy condition in a frequency band.

Summarizing, Fleek fails to disclose identifying a low energy condition for designating a starting time for a frequency hopping pattern, as described by applicant's specification, at paragraph 0061.

Claim 5:

Claim 5 depends from and further limits claim 1 and includes the features of claim 4. Claim 5 is patentable over Lyle, in view of Fleek, on the same basis as claim 4.

Claim 14:

Claim 14 depends from claim 11 and includes the features claim 5. Claim 14 is patentable over Lyle in view of Fleek on the same basis as claim 5 or claim 11 from which it depends.

Claim 20, as amended:

(i) "a timing controller configured to transmit scan messages inquiring about neighborhood networks and frequency hopping patterns they employ and select from scan responses a frequency hopping pattern for a local short-range wireless network based on a frequency hopping pattern of at least one remote short-range wireless communications network detected by the carrier sensing module;"

The Examiner contends paragraphs 34, 27 and 37 of Lyle disclose the subject matter of feature (i). Paragraph 34 discloses a hop sequencer. Paragraph 27 provides further details on the hop sequencer and paragraph 37 describes offset to prevent collisions.

Applicants can find no disclosure in Lyle or Fleek regarding generating scan messages for the reasons indicated in connection with the consideration of claim 23.

(ii) "the timing controller further configured to transmit signals and to control one or more transmission times according to the selected frequency hopping pattern based on energy levels detected in a frequency band by the carrier sensing module; and"

The Examiner contends that Fleek, at col. 4, lines 52-53, discloses a timing controller configured to control one or more transmission times. The cited paragraph discloses a station including a micro controller and timer 110, shown in Fig. 2, which senses to determine if a carrier is present. Applicants can find no disclosure in the cited paragraph for a timing controller

that controls transmission times according to a selected frequency hopping pattern, based on energy levels detected in a frequency band by a carrier sensing module.

(iii) “a transceiver, responsive to the transmit signals, configured to transmit data at the one or more data transmission times according to the selected frequency hopping pattern.”

Fleek, at col. 6, lines 44-46, discloses after a minimum hop cycle time is reached, the station checks or senses for a carrier signal at the current frequency of the hop cycle. When the carrier is not longer sensed or the maximum hop cycle time is reached, the leader station broadcasts the hop cycle trailer. In contrast, Applicants, at paragraph 61, discloses a low energy condition is identified as a frequency band to designate a start time for a selected frequency hopping pattern during a low energy condition.

Lyle, in view of Fleek, fails to disclose or suggest (a) a timing controller configured to transmit scanned messages and further configured to transmit signals to control one or more transmission times, according to a selected frequency hopping pattern, based on energy levels detected by a carrier sensing module.

Claim 21:

(i) “The wireless communications device of claim 20, wherein the transceiver is further configured to transmit the selected frequency hopping pattern to one or more devices in the local short-range wireless network.”

The Examiner contends that Fleek, at col. 6, lines 29-34 and col. 7, lines 29-36, discloses transmitting a selected frequency hopping pattern to one or more devices in a local short-range wireless network. The cited references disclose a station waiting until a radio channel becomes idle and then begins sensing and transmitting procedures to broadcast a hop cycle before hopping to a next frequency. Applicants can find no disclosure in the cited references of transmitting the selected frequency hopping pattern to one or more devices in a local short-range wireless network. In any case, claim 21 depends from and further limits claim 20 and is patentable over Lyle in view of Fleek on the same basis as claim 20.

Claim 22:

Claim 22 depends from and further limits claim 20, via claim 21, and is patentable over Lyle in view of Fleek on the same basis as claim 20.

Claim 25:

(i) “generating scan messages inquiring about neighborhood networks and frequency hopping patterns they employ;”

For reasons discussed in connection with the consideration of claim 20, applicants can find no disclosure in either Lyle or Fleek relating to generating scan messages inquiring about neighborhood frequency hopping patterns.

(ii) “distributing information regarding the selected TFC to one or more remote devices within the local short-range wireless communication network.”

The Examiner contends Fleek at col. 6, lines 29-34 and col. 7, lines 29-36, disclose the claimed feature. The cited references disclose a station waiting until an idle period occurs in a channel to begin sensing and transmitting procedure. A fixed frequency hopping pattern is used. The pattern is one of several patterns that are soon to be known by both a leader and remote stations. Thus, a leader need only indicate the pattern is being used in the current index in the pattern indicating at which point in the frequency pattern the radio transceiver will next hop to. Applicants can find no disclosure in the cited references to distributing information regarding a selected TFC to one or more remote devices, as described in applicant's specification at paragraph 0059.

(iii) “determining whether the wireless communication device needs to transmit data within the local short-range communication network”

The Examiner contends that Fleek, at col. 5, lines 31-33, discloses the claimed subject matter. Fleek, at col. 5, lines 31-33 discloses a station either a leader or remote station having a packet ready for transmission senses the radio channel and determines if the carrier is present. Applicants can find no disclosure in the cited references related to determining when a communication device needs to transmit data within the communications network, as described in applicants' specification at paragraph 0053.

(iii) “monitoring one or more of the frequency bands to designate a transmission timing for the data”

The Examiner contends that Fleek, at col. 5, lines 34-39, and lines 48-49 discloses the claimed subject matter. The cited references disclose a radio station senses a radio channel to determine if carrier is present and waits until the radio channel becomes idle before beginning

sensing and transmitting after a back-off time. Applicants submit that Fleek, at the cited references, does not disclose monitoring frequency bands to designate a transmission timing for data, as described by applicant specification at paragraph 0053.

Summarizing Lyle, in view of Fleek, fail to disclose or suggest (a) distributing information regarding a selected TFC; (b) determining whether a wireless communication device needs to transmit data; and, (c) monitoring frequency bands to designate a data transmission timing for data for the reasons indicated above. Applicants submit that claim 25 describes subject matter not shown or suggested in the cited art.

IV. Claim rejections under 35 USC 103 (a):

Claims 3 and 13 include features not disclosed or suggested in Lyle in view of Ryan and overcome the rejection under 35 USC 103(a) based upon the cited references, as follows:

Claims 3 & 13:

Ryan does not supply the missing features in Lyle described in the consideration of claims 1 and 11 from which claims 3 and 13 depend from and further limit. Claims 3 and 13 are patentable on the same basis as claims 1 and 11, respectively.

CONCLUSION

Applicants have amended claims 1, 10, 11, 14, 20, 23, and 25 to further define the claimed subject matter from the cited references. Entry of the amendment, allowance of the claims and passage to issue of the application are requested.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 13-4500, Order No. 4208-4175. A DUPLICATE OF THIS SHEET IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 13-4500, Order No. 4208-4175. A DUPLICATE OF THIS SHEET IS ATTACHED.

Respectfully submitted,
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By: _____

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